2024 - 2025 Major Map
Engineering (Electrical Systems), BSE

School/College: Ira A. Fulton Schools of Engineering
TSEGRESBSE

Term 1 0 - 16 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
ASU 101-TPS: The ASU Experience	1		• ASU 101 is required of all first-year students. • Prep for success using the First-Year Student Guide. • Join a Fulton community. • Explore engineering and technical professions.
EGR 101: Foundations of Engineering Design Project I	3		
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
MAT 265: Calculus for Engineers I (MATH OR MA)	3	C	
Humanities, Arts and Design (HUAD)	3		
Social and Behavioral Sciences (SOBE)	3		
Term hours subtotal:	16		

Term 2 16 - 32 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
EGR 102: Foundations of Engineering Design Project II	3		• Create a Handshake profile. • Get involved with EPICS, the Generator Labs, and the Fulton Start-Up Center.
CHM 113: General Chemistry I (SCIT OR SQ)	4	C	
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
MAT 266: Calculus for Engineers II (MATH OR MA)	3	C	
Governance and Civic Engagement (CIVI)	3		
Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Complete MAT 265 course(s).			
Term hours subtotal:	16		

Term 3 32 - 48 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
EGR 201: Use-Inspired Design Project I	3	C	• Prep for success using the Sophomore Guide.
EGR 216: Engineering Electrical Fundamentals	3	C	
EGR 218: Materials and Manufacturing Processes	3	C	
MAT 267: Calculus for Engineers III (MATH OR MA)	3	C	
PHY 121: University Physics I: Mechanics (SCIT OR SQ)	3	C	

	PHY 122: University Physics Laboratory I (SCIT OR SQ)	1	C
	Complete MAT 266 course(s).		
	Complete Mathematics (MATH) requirement.		
	Term hours subtotal:	16	

Term 4 48 - 63 Credit Hours Critical course signified by	**Hours**	**Minimum Grade**	**Notes**
EGR 202: Use-Inspired Design Project II	3	C	• Pursue an undergraduate research experience. • Apply for internships. • Attend career fairs and events.
EGR 217: Engineering Mechanics Fundamentals	3	C	
EGR 219: Computational Modeling of Engineering Systems	3	C	
EGR 280: Engineering Statistics (QTRS OR CS)	3		
MAT 275: Modern Differential Equations (MATH OR MA)	3	C	
Complete EGR 216 AND EGR 218 course(s).			
Term hours subtotal:	15		

Term 5 63 - 78 Credit Hours Necessary course signified by	**Hours**	**Minimum Grade**	**Notes**
EGR 304: Embedded Systems Design Project I	3	C	• Plan for success using the Junior Guide. • Network at student organization competitions or professional societies.
EGR 330: Design of Electrical Systems	3	C	
HST 318: History of Engineering (HUAD OR (L or SB) & G)	3		
Science Elective (PHY 131 recommended)	3		
American Institutions (AMIT)	3		
Term hours subtotal:	15		

Term 6 78 - 93 Credit Hours Necessary course signified by	**Hours**	**Minimum Grade**	**Notes**
EGR 314: Embedded Systems Design Project II	3	C	• Students work with an academic advisor to identify their Upper Division Technical Electives. • Research and prepare for graduate school. • Apply for an engineering 4+1 program. • Develop a professional profile online.
EGR 334: Analog-Digital Interface	3	C	
EGR 338: Microcontrollers in Smart Systems	3		
MAT 343: Applied Linear Algebra	3		
Upper Division Technical Elective	3	C	
Term hours subtotal:	15		

Term 7 93 - 108 Credit Hours Necessary course signified by	**Hours**	**Minimum Grade**	**Notes**

★	EGR 401: Professional Design Project I (L)	3	C
★	EGR 476: Microgrid Design and Operation	3	
	PHY 331: Principles of Modern Electromagnetism	3	
	Upper Division Technical Elective	3	C
	Global Communities, Societies and Individuals (GCSI)	3	
	Term hours subtotal:	15	

- Students work with an academic advisor to identify their Upper Division Technical Electives.
- Plan for success using the Senior Guide.
- Use Handshake to apply for full-time positions.
- Complete an in person or virtual practice interview.

Term 8 108 - 120 Credit Hours Necessary course signified by ★	**Hours**	**Minimum Grade**	**Notes**
★ EGR 402: Professional Design Project II	3		
EGR 431: Power Management	3		
Upper Division Technical Elective	3	C	
Sustainability (SUST)	3		
Term hours subtotal:	12		

- Students work with an academic advisor to identify their Upper Division Technical Electives.

Hide Course List(s)/Track Group(s)

Science Elective
ABS 130: Introduction to Environmental Science (SCIT OR SQ)
ABS 225: Soils (SQ)
AST 111: Introduction to Solar Systems Astronomy (SCIT OR SQ)
BIO 181: General Biology I (SCIT OR SQ)
CHM 116: General Chemistry II (SCIT OR SQ)
CHM 231: Elementary Organic Chemistry (SCIT OR SQ)
ENV 130: Introduction to Environmental Science (SCIT OR SQ)
GLG 101: Introduction to Geology I (Physical) (SCIT OR SQ)
PHY 131: University Physics II: Electricity and Magnetism (SCIT OR SQ)

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- University Undergraduate Graduation Requirements

Notes:
Mathematics Placement Assessment score determines placement in first mathematics course.

General Studies designations listed next to courses on the major map were valid for the 2024 - 2025 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.